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fernald Report

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Jan/Feb 2003

Message from Steve McCracken

What's ahead in 2003

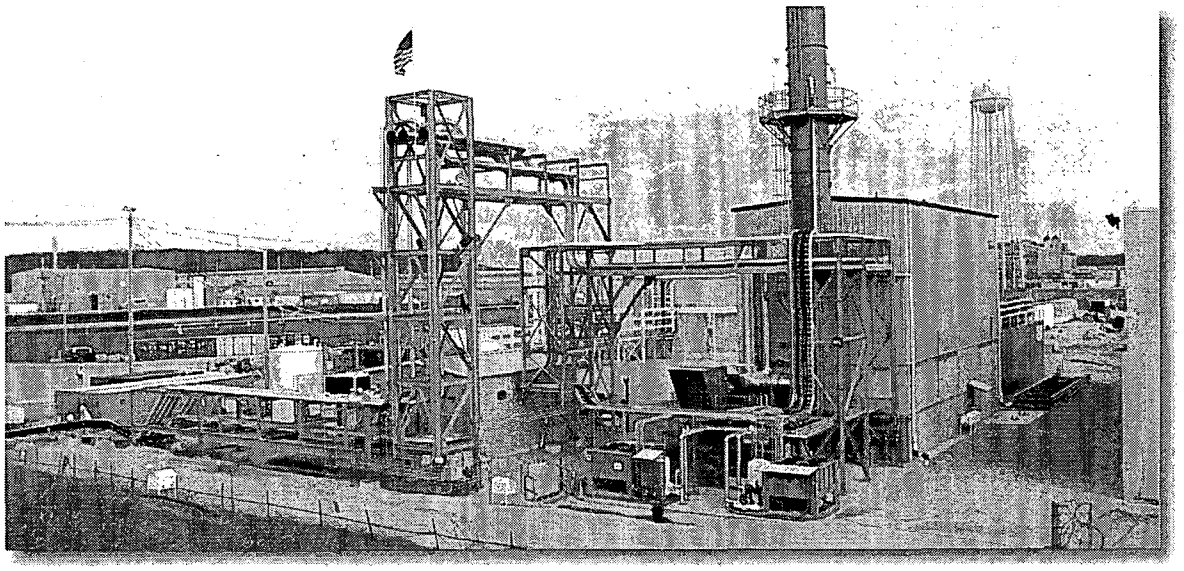
Those of you who are familiar with the Fernald cleanup know the appearance of the site changed dramatically in 2002. I can tell you that we'll see even more dramatic changes in 2003 and reach some very important milestones during our journey toward closure. As of January 1, 2003 we're nearly halfway home. By the end of this year, we will have demolished Plant 8, Plant 2/3, the Pilot Plant and the Lab. This means by the end of September, all ten of the original uranium production plants will be history. Also this fall, the icon numerous television news crews have used to show the breadth of this project, the Plant 1 pad, which was once home to over 100,000 drums and containers, will be completely empty.

I look forward to sharing these crucial steps with you as we move closer to safe closure in 2006. In addition to the two milestones I've already noted, we'll complete construction of the system designed to transfer waste from the aging K-65 Silos to the Temporary Transfer Tanks. Construction on Silo 3 Project waste handling facilities will be well underway. Train #75 from the Waste Pits will be the first train out the gate in 2003 and train #100 will leave the site by the end of the year. We'll open Cell 6 and complete the cover on Cell 2 at the On-Site Disposal Facility, and of course we'll continue pumping and treating water from the Great Miami Aquifer to remove uranium contamination found beneath Fernald's footprint.

As we look forward to another year, we continue to gain momentum in our journey toward closure. Fernald is changing. By the middle of this year, I'll be writing these messages from a trailer just south of where the old Pilot Plant once stood. My office in the Administration Building, along with 90 other offices, will be emptied as crews prepare the building for demolition. Our workers continue to do an excellent job and I expect the same in 2003. I also look forward to working with our partners – regulators from both Ohio and US EPA, the Fernald Citizen's Advisory Board, FRESH and of course our neighbors. We still have a lot of work in front of us, but I'm confident our plan is sound and as always, safety remains our top priority while we work toward our goal.

Steve McCracken
Director, DOE-Fernald

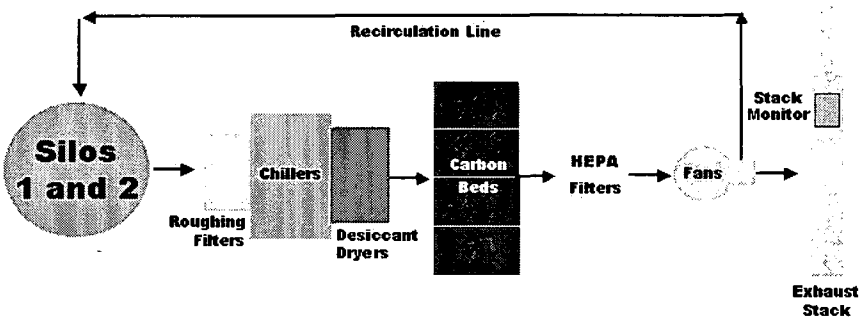
On the cover: *An iron worker prepares the foundation for Silo 3 material packaging facilities (7325-0933).*



Left: The Radon Control System (RCS) is designed to draw radon gas out of the K-65 silo headspaces in order to protect workers and neighbors during waste retrieval and treatment (7385-d2281).

Radon Control System (RCS) Hot Startup

Friday, December 6, 2002 proved to be a successful day for Fernald's Silos Project team. They flipped the switches, started up the newly-constructed Radon Control System (RCS) and took a major step forward in the safe retrieval and disposal of 8,900 cubic yards of radioactive waste. The system is designed to draw radon, a naturally-occurring radioactive gas produced from the decay of radium, out of headspace areas in both of Fernald's two K-65 silos.



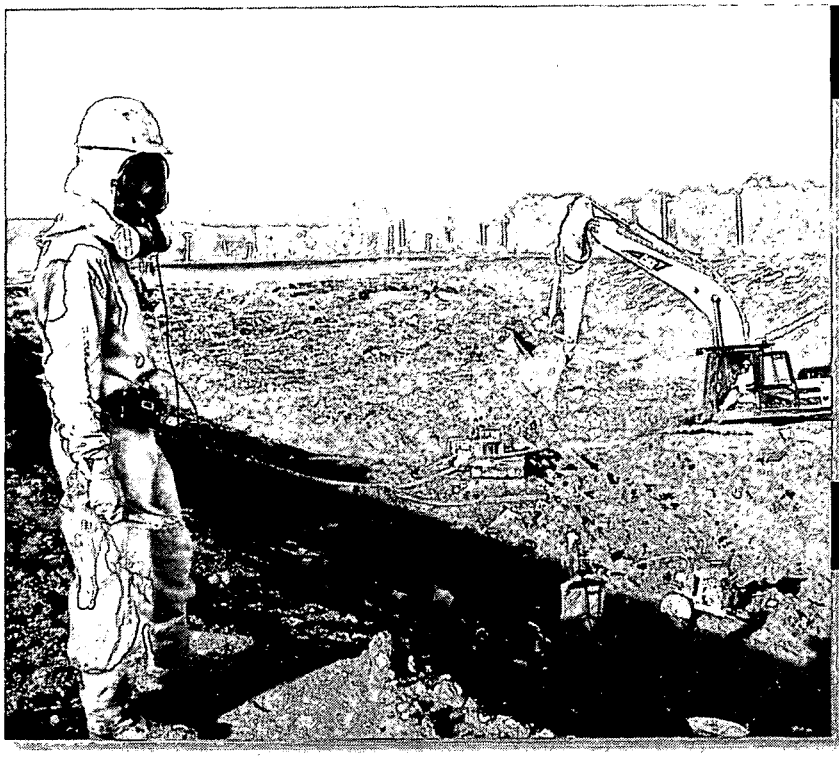
The RCS, which stands about 40 yards from the earthen-bermed silos, will reduce radon concentration by 95 percent. Fans draw the radon-bearing air into the facility through a series of valves and pipes connected to manways on top of the silos. The air passes first through chillers and dryers which drop its moisture level and temperature, then through filters containing activated carbon, which allows radon to decay. The carbon traps the resulting particulate. The air then passes through HEPA filters to remove any remaining particulate from the radon decay chain. "Reducing the radon levels is key to ensuring the protection of our workers and neighbors during the removal of K-65 residues from the silos," said Fluor Fernald Silos Project Manager Ray Corradi. "With radon levels in check we can now move to the next step of the project, which is transferring the waste from the aging concrete silos into our new 750,000-gallon steel tanks."

The RCS hot startup was essentially a test to ensure that the system would work correctly. And it worked well: in just a few hours, radon levels in the Silo 1 headspace dropped from 18 million picocuries per liter (pCi/L) to 0.5 million pCi/L. In Silo 2, they dropped from 19 million pCi/L to 1 million pCi/L. Now the system will move into three more phases of operation. Phase I will support waste retrieval component construction by reducing the radiation field on top of the silos. Phase II will support the waste removal and transfer to storage tanks. Phase III will support the waste transfer to the treatment facility.

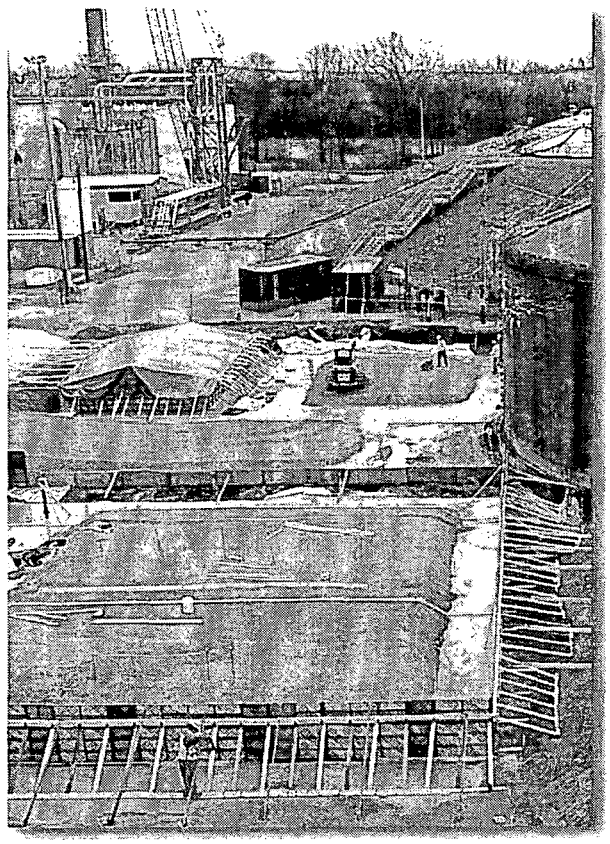
"Removal of silo waste is a priority for the Department of Energy (DOE), regulators and stakeholders and is on our critical path for site closure," said Corradi. "The success of the RCS gives us confidence that our simplified, proven and safe approach to this project will work."

In June 2003, crews will begin installing waste retrieval equipment around Silos 1 and 2. The Silos Project team plans to use water jets and slurry pumps to remove the clay-like waste from the silos and transfer it into four temporary storage tanks. The transfer system is scheduled for startup in spring 2004. From there, treatment plant operators will blend the waste with cement to produce loose concrete suitable for safe packaging and transportation off site.

Cleanup **Progress** Update



Above: Crews continue to excavate waste from Pit 5. Waste Pits Remedial Action Project personnel have shipped over 467,000 tons of waste to Envirocare of Utah (6944-d2313).



Right: Workers place the concrete forms for Silo 3 material handling buildings (7325-d0922).

Waste Pits Remedial Action Project (WPRAP)

- ☐ Transported pit waste in unit trains #70 - #74 to Envirocare of Utah during November/December timeframe bringing the total tonnage shipped to over 467,000 tons
- ☐ Excavations continues in Pits, 1, 2, 3, and 5; Pit 4 cap material has been excavated and stockpiled
- ☐ Hauled soil and debris that doesn't meet the waste acceptance criteria for the On-Site Disposal Facility to waste pits for disposition during November and December
- ■ **Project 59% Complete**

Silos Projects

- ☐ Successfully ran Radon Control System Hot Test, bringing the radon concentrations in both Silo 1 and 2 down to 3 percent of previous levels. System will run intermittently for additional tests and as required for exposure reduction during future construction work on the silo domes.
- ☐ Formed, reinforced and poured roughly 900 cubic yards of concrete to make the first large section of the Silos 1 and 2 facility foundation mat.
- ☐ Completed final construction for the silo reinforcement demonstration on Silo 4
- ☐ Completed excavation and formed, grounded, reinforced and poured foundation walls for the Silos 1 and 2 warehouse building
- ☐ Built safety steps and platforms on the silo berms for access
- ☐ Awarded purchase of the waste retrieval pumping and sluicing modules
- ☐ Mobilized a new 225-ton crane for work on the transfer tanks and silo bridges
- ☐ Mobilized the contractor for the steel, concrete deck and enclosure over the transfer tanks
- ☐ Completed the bedding work for the rail spurs into the Silo 1 and 2 treatment facility
- ☐ Completed excavation and started form work, grounding, reinforcing and foundation pours for the Silo 3 material handling building
- ■ **AWR is 55% complete**
- ■ **Silo 1 and 2 is 12% complete**
- ■ **Silo 3 is 14% complete**

Soil and Disposal Facility Project

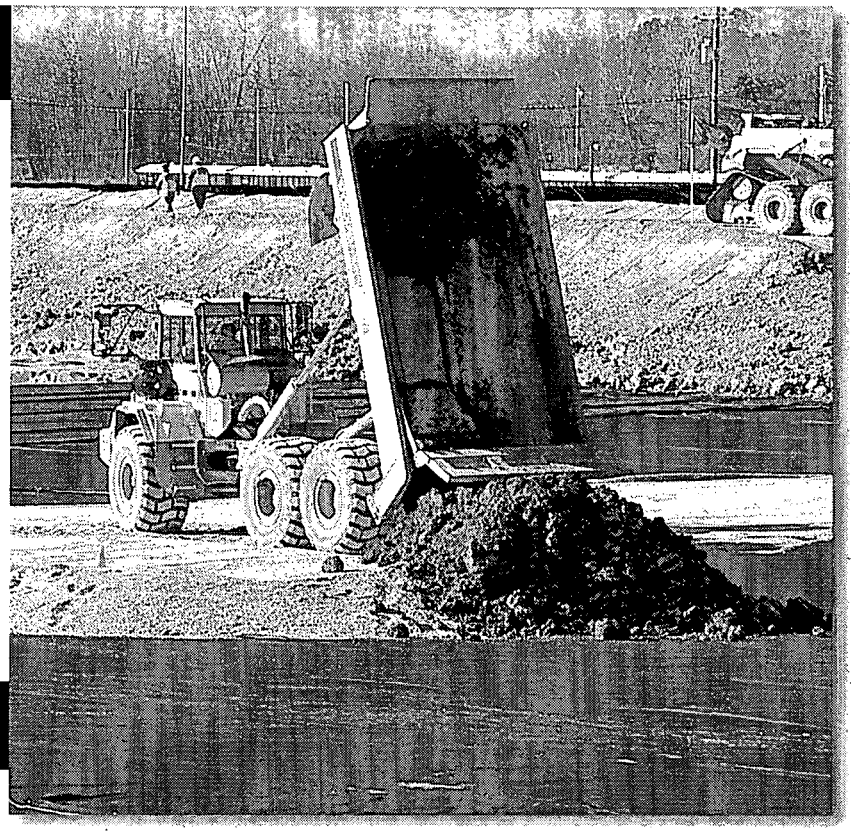
- Completed construction of the liners of Cells 4 and 5 of the On-Site Disposal Facility and placed protective layer in both cells in November
- Placed 20,000 cubic yards of impacted material in Cells 4 and 5
- Completed restoration work in Southern Waste Units and Northern Pine Area for the season
- Continued excavation of soil in eastern half of the production area
- Started excavation of the old Fire Training Facility and old entrance road off Rt. 126
- Continued operation of the bulk debris staging at the OSDF Material Transfer Area; over 1644 rolloff boxes emptied to date

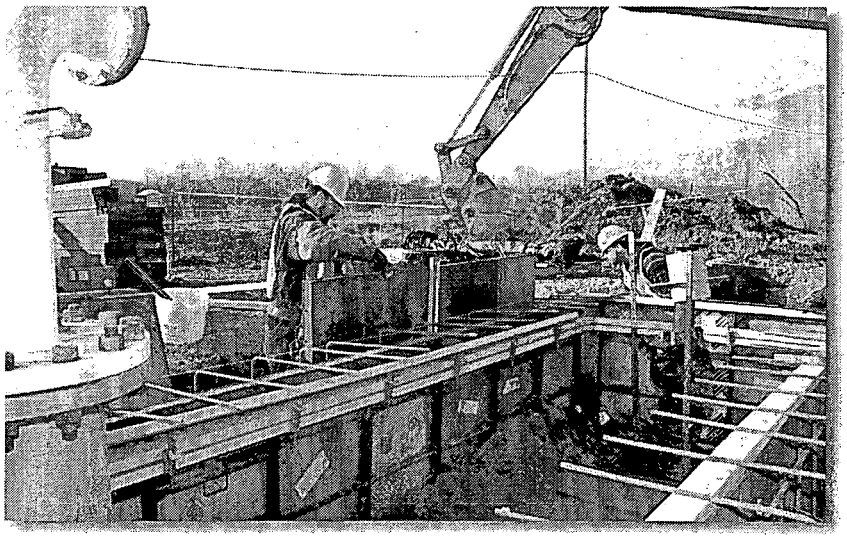
■ Project 40% Complete

Aquifer Restoration/ Wastewater Project

- Analyzing geoprobe results in South Plume area south of Willey Road to determine progress of cleanup and determine need for future South Plume Optimization Phase II module design parameters
- Completed construction and start-up of relocated re-injection wells 8a and 9a and new re-injection well 10a
- Completed rehabilitation of injection well 10 and extraction well 4
- Initiated field construction of South Field Phase II infrastructure to support the addition of 4 new extraction wells; 1 new injection well; conversion of an existing extraction well to an injection well; and 1 new injection pond
- Completed installation of 2 new groundwater monitoring wells for Cell 6 at the OSDF and began monitoring to support Cell 6's accelerated startup next year
- October/November totals: extracted 408,942,000 gallons of groundwater; treated 191,535,000 gallons of groundwater; removed 222 net pounds of uranium from aquifer

■ Project 67% Complete

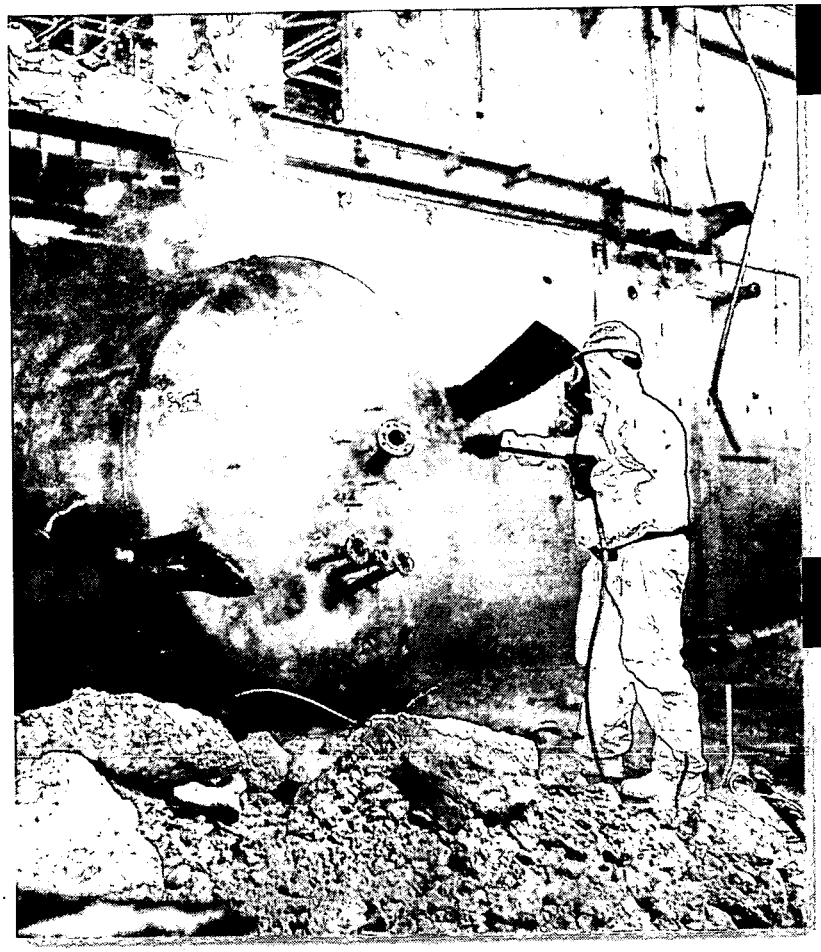




Top: On-Site Disposal Facility Project personnel placed the first waste into Cell 5 in mid-November (6319-d3906).

Above: Workers install a new injection well that is likely to help speed cleanup of the Great Miami Aquifer (6261-d666).

Cleanup **Progress** Update



Demolition Projects

Decontamination & Demolition (D&D)

- ☐ Ongoing activities in the Multi-Complex (Plants 2, 3, 8, Pilot Plant, Building 64/65 and General Sump) included: asbestos abatement; removal of equipment, piping, lead and interior transite; gross washdown and size reducing debris and placement in roll-off boxes for disposition
- ☐ Began mobilization activities in the Laboratory Complex
- ☐ Completed demolition of the Nitric Acid Recovery Towers
- ■ **Project 53% Complete**

Waste Management Project

- ☐ Low Level/ Uranium Waste Project
  - ◇ Continued characterization and visual inspection of containers
  - ◇ Continued packaging of materials for shipment to the Nevada Test Site
- ☐ Liquid Mixed Waste Bulking Project
  - ◇ Completed bulking of Batch 13 liquid mixed waste (184 containers)
- ■ **Project 96% Complete**

Top left: A worker decontaminates a tank as part of the Plant 2/3 demolition (6383-d1017).

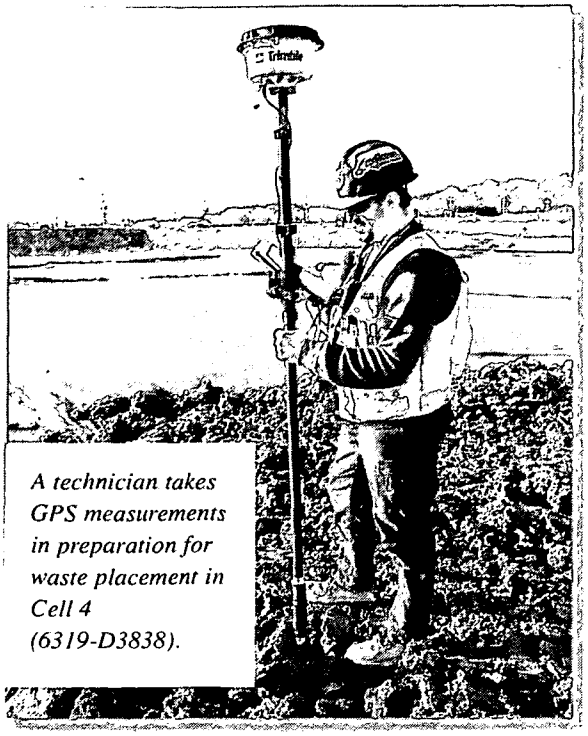
Left: A hazardous waste technician inspects drums of thorium legacy waste (7048-d179).

Left: Hazardous waste technicians inspect drums of waste in Building 79 to support waste characterization efforts (7911-d07).

Fernald Shipments – November / December 2002

Contents / Destination	Shipment Mode	Number of Shipments	Monthly Total	FY03 Total	Approximate Project Totals
Low-Level Waste (Nevada Test Site)		7	9,773 cu. ft.	27,434 cu. ft.	6.4 million cu. ft.
Mixed Waste - Materials & Energy Corporation at Oak Ridge		3	3,293 cu. ft.	5,931 cu. ft.	18,145 cu. ft.
Liquid Mixed Waste - Toxic Substance Control Act Incinerator at Oak Ridge		0	0 gal.	16,552 gal.	163,912 gal.
Nuclear product/materials (Portsmouth)	 COMPLETE		et lbs. or 0 metric tons uranium	451,305 net lbs. or 181.6 metric tons uranium	9,083,388 net lbs. or 3,541.1 metric tons uranium
Soil and debris - On Site Disposal Facility		N/A	22,968 in-place cubic yards	62;563 in-place cubic yards	918,658 in-place cubic yards
Waste Pits Project (Envirocare of Utah, Inc.)		5 unit trains (294 railcars)	31,666 tons	44,492	467,297 tons

Graphics # 5949



A technician takes GPS measurements in preparation for waste placement in Cell 4 (6319-D3838).

Cells 4 and 5 open for business

The Department of Energy and Fluor Fernald have completed construction of two new disposal cells as part of a seven-cell, three-quarter-mile-long On-Site Disposal Facility (OSDF). On November 8, 2002, heavy equipment operators began placing contaminated soil in one of the new 800-foot-wide by 400-foot-long cells. On November 19, the project also opened the other new cell for placement. The 70-acre disposal facility, complete with a leachate collection system, 5-foot thick earthen and synthetic liner and a 8.75 -foot thick cover, is designed to hold 2.5 million cubic yards of waste.

Cell 1 is completely full and covered. Cell 2 is also full and awaiting cover construction and Cell 3 is over 50 percent filled. "The rain this past spring slowed us down and the extremely dry weather in the summer didn't help us because the clay used for the cell liners needs to possess the right moisture content," said Rob Janke, manager, DOE-Fernald. "Our folks did an excellent job of working through these conditions and completing the cells safely and on schedule."

Construction and loading of the OSDF is nearly 40 percent complete and overall cleanup of the 1,050-acre site is 50 percent complete. When finished, the OSDF will encompass about 130 acres, including a buffer area, and will be protected by a 10-foot-high fence.

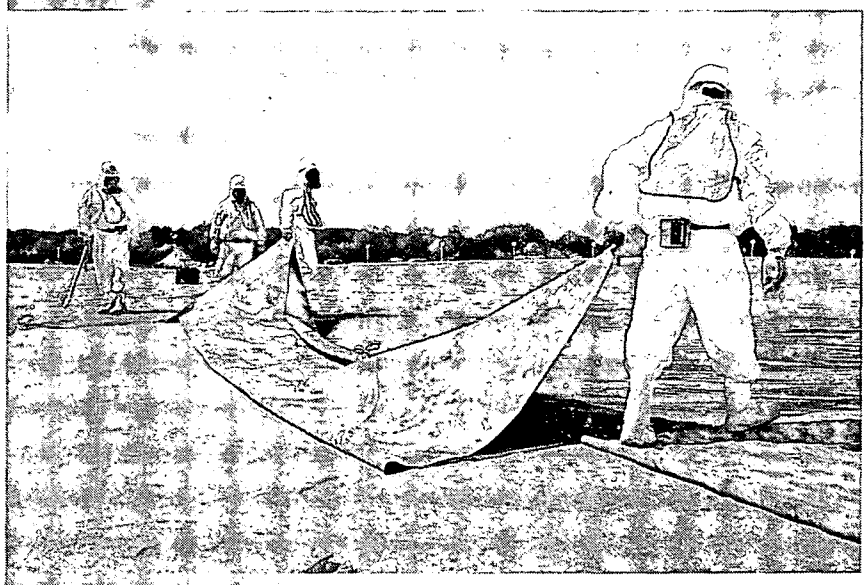
Waste Pits - Waste no time

On April 26, 1999, the first unit train pulled out of Fernald to make the 3500-mile round-trip to Envirocare, a commercial disposal facility in Utah. Since then, 74 more trains have made the journey. Each unit train is made up of 55 to 62 gondola cars and each railcar is capable of carrying over 100 tons. Unit train 75 left Fernald in January, and that month's shipments raised the total amount of waste transported to Envirocare to over 470,000 tons.

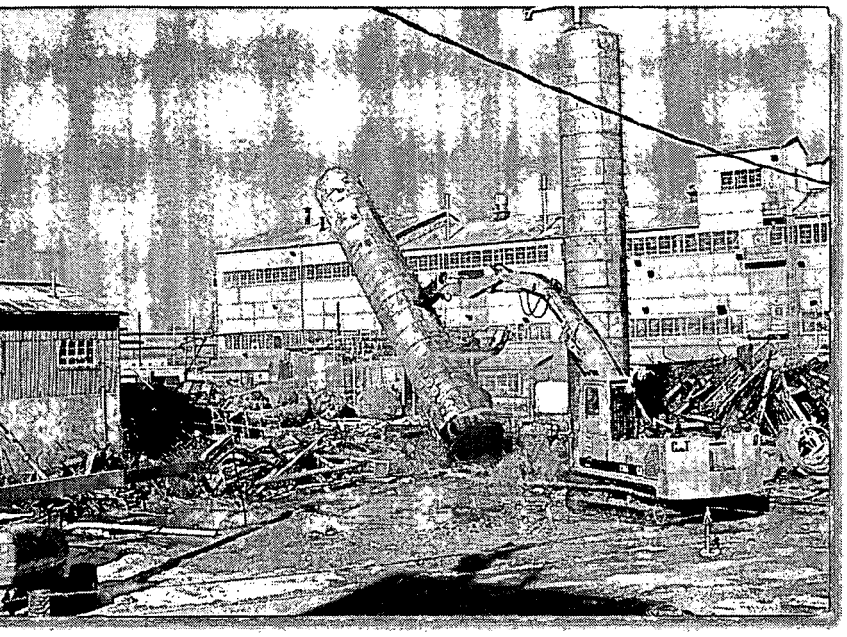
The Waste Pits Project involves the cleanup of approximately one million tons of waste stored in six pits. The project will load out about 800,000 tons after water removal. Crews are currently excavating Pits 1, 2, 3 and 5, and are almost 59 percent complete. Workers have excavated and stockpiled the covering on Pit 4 and will start waste removal in early 2003. The smallest of the pits, Pit 6, has a water cover; dewatering and excavation activities there will also begin in 2003.

The Waste Pits Project, along with the rest of the site, has accelerated its schedule. In order to complete waste processing by September 2004, the project plans to process more than 150,000 tons in FY2003. To meet this challenge, the project has gone on a 24/7 work schedule, will expedite rail shipments by adding 30 gondola cars to the current fleet of 190 and is developing plans for construction of an additional rail track. Project personnel are also in the process of drafting an amendment to the Operable Unit 1 Record of Decision which will address adjustment of soil remediation levels and Pit 4 cap material disposition. The amendment will also clarify terminology.

"There will be many challenges for the Waste Pits Project in 2003," said Dave Lojek, DOE project manager, "but I'm confident that the Fluor/Shaw team will meet or exceed its goals."



Above: Workers remove the hypalon cover on Pit 4 before excavating over 8,000 cubic yards of the clay cap material (6944-d2191).



shear pushes over one of the 60-foot Nitric Acid Recovery (NAR) Towers while an erator on the ground sprays water to control dust (6383-d1074).

The two towers

One by one the buildings at Fernald are coming down. The Decontamination and Dismantlement (D&D) Project has been very busy; crews removed a total of 22 structures in 2002. The group currently has three major D&D jobs underway: Plant 2/3, Plant 8 and the Pilot Plant. Workers will also begin demolition of the Laboratory complex in January.

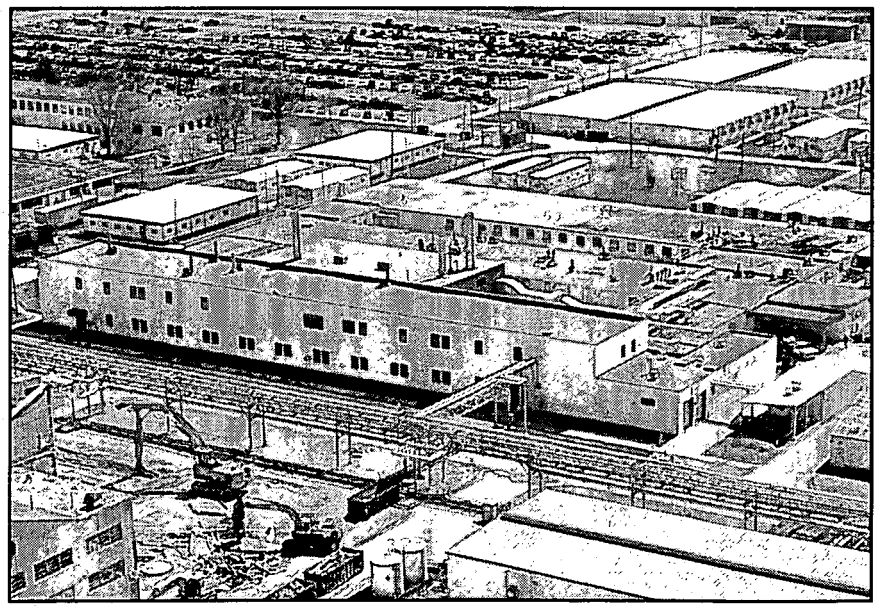
The dismantlement of the Nitric Acid Recovery (NAR) Towers has recently resulted in one of the more visible changes to Fernald's skyline. During uranium production, the 60-foot NAR towers worked in conjunction with the Ore Refinery Plant to recover nitric acid from the nitrogen oxide fumes generated in digestion, denitration and other refinery processes. Pipes then returned the recovered acid to the digestion area for reuse, reducing operating costs and the chances of accidental release into the environment. The tower system served its purpose until Fernald shut it down in 1988.

Soon the Lab will be down to a slab

The building that once housed Fernald's Analytical Laboratory, where technicians sampled uranium products and materials for quality assurance, is now the next in line for demolition. In the early 1990s, as the site's mission transitioned from uranium production to environmental cleanup, the role of the 73,876 square foot Analytical Laboratory changed also. Today, lab technicians working in mobile units assist Fernald's waste shipping and environmental monitoring programs by assuring waste is accurately characterized and that the site attains proper cleanup levels.

"MACTEC crews are now preparing the building for demolition by bringing in temporary power for lighting and sealing the building before starting asbestos abatement," said Fluor Fernald Construction Engineer Kelly Baker. "It will take several months to remove asbestos piping insulation and floor tile from the original portion of the Lab. Once that's complete, we'll work with radiological technicians to identify and lock down any fixed radioactive contamination to reduce the chances of it spreading once demolition begins."

By late spring, shears will begin knocking down the building. Crews will use trucks carrying roll-off boxes to haul the debris to a staging area before placing it in the On-Site Disposal Facility. Once workers complete demolition in September 2003, the Laboratory will become the fourteenth major facility dismantled and the fourth in one year. Only the Service Building and Administration Building will then remain in the administrative area.



Above: Fernald has accelerated the demolition of the Laboratory in 2003 to allow soil excavation crews more time to remove possible contamination from beneath the building's footprint (7773-d0002).

Above: Fernald's Wish Tree 2002 program helped 18 families and 158 children celebrate the holidays (7714-d20).

Fernald's Santa spirit makes wishes come true

For the past eight years, Fernald employees have been pitching in to make the holiday season a little brighter for local families in need of assistance. "We work with schools to identify families who could use some help, and then employees purchase and wrap presents for the children," said Katie Payne, Wish Tree event coordinator. "This program works because so many people donate time, money and creative ideas."

This year, volunteers helped 158 children have happy holidays. The Santa spirit is certainly alive at Fernald.

Fernald goes to school: have some PIE!

In 1987, two local teachers had an idea: begin a Partnership In Education (PIE) program with scientists from the Fernald site. That first year, Ross Middle School held ten sessions for 20 seventh and eighth grade students and the program was a great success. During the past 16 years, over 1,400 students from five different schools have participated.

This program brings the Fernald site to the local schools by presenting engaging, up close and personal after-school enrichment activities. Partnership In Education enhances students' interest in the sciences and emphasizes problem-solving, critical thinking and career opportunities and offers ideas on how to apply these concepts to everyday life. Fernald volunteers visit classrooms each month of the school year, bringing hands-on, minds-on activities to students who are selected based upon their interest in science. Sessions cover topics such as chemistry, rocketry, physics, radiation, geology and ecology.

Above: Ross Middle School students enjoy a reverse tie-die experiment (7914-d06).

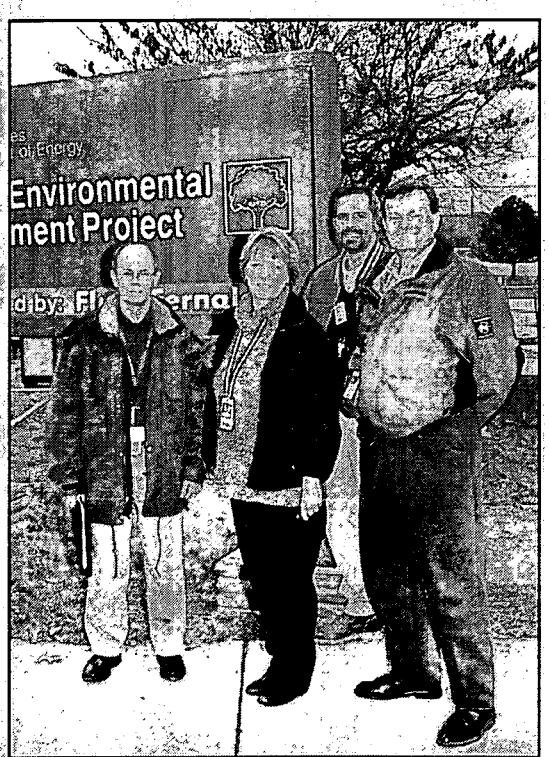
A greater reward

Angela Rentschler was excited when she first began her Bachelor of Business Management degree program. She met ith an advisor at the Union Institute and entioned she wanted to take four classes each rm. He laughed at her. "I did take four that rst semester," she said, but admits the work as more demanding than she had expected. just cried!"

Five years later, Angie, who works in rnald's Industrial Relations department, is a oud graduate of the Union Institute. She rned her degree in October 2002 and now ans to reacquaint herself with a life free of hoolwork. "On my Fridays off, I knew other ople were doing whatever they wanted and ving fun while I sat in the library," Angie id."But I told myself I wouldn't leave Fernald ithout my degree, so I just kept taking classes." It ultimately paid off. "On graduation day, y 10-year-old daughter, Alex, hugged me and told me how proud she was of me," Angie id." You couldn't ask for a greater reward."

Angie firmly believes that everyone who works at the site owes it to themselves to prepare r life after Fernald. "In a couple of years, we'll all have to search for new employment," e said, "but thanks to my degree, I'll be leaving with a career path, not just a job."

Above: (left to right) In October 2002, Angela Rentschler, Andrew Hobbs (not pictured), Diana Sparks and Richard Spence all graduated with their bachelor degrees from the Union Institute (7918-d06).



New ES&H Assistant Secretary visits Fernald

Beverly Cook, DOE's Assistant Secretary of Environment, Safety and Health, made her first visit to Fernald on November 25, 2002. Ms. Cook is the Secretary of Energy's principal advisor on matters of safety, environmental concerns, and worker and public health for the DOE complex. During her visit, she toured the site and was impressed by the number of projects underway. After the tour, she held briefings with DOE and Fluor Fernald safety managers and met with union representatives. Before her assignment to ES&H, Ms. Cook served as operations office manager in Idaho and as a senior manager in the Nuclear Energy and Environmental Management office.

Left: (left to right) Steve McCracken, director, DOE-Fernald; Beverly Cook, assistant secretary of Environment, Safety and Health; Dave Kozlowski, associate director, DOE-Fernald; and Dennis Carr, Fluor senior director of projects (7902-d0001).

New documents added to the Public Environmental Information Center

The following information was added to the Public Reading Room, Administrative Record files and Post Record of Decision files at DOE's Public Environmental Information Center (PEIC):

- ☐ Soil and Disposal Facility Project
  - ◇ DOE-FEMP Responses - Transmittal of Responses to Ohio Environmental Protection Agency Comment and the Final Certification for the Area 5 Eastern Field
  - ◇ DOE-Fernald Report – Certification Report for Area 9, Phase I, October 2002
  - ◇ DOE-Fernald Letter – Transmittal of the Draft Implementation Plan for the Stockpile of Soil and Debris from Infrastructure Projects
- ☐ Decontamination and Demolition Project
  - ◇OEPA Approval – Task Order #086 Completion Report for Miscellaneous Small Structures
  - ◇OEPA Approval – Administration Complex Phase I Decontamination and Dismantlement Project Completion Report
- ☐ Silos Project
  - ◇ OEPA Comments – Silos 1 and 2 Accelerated Waste Retrieval Project Remedial Design Package
  - ◇ USEPA Approval – November 1 Extension For Operation of the Radon Control System
  - ◇ DOE-Fernald Letter – Silo 3 Excavation/Concrete Slab Construction Package
- ☐ Aquifer Project
  - ◇ OEPA Approval – Second Quarter 2002 Re-injection Report
  - ◇ Fluor Fernald Report – Amended September 2002 Discharge Monitoring Report for Outfall

Note: This does not represent the complete list of new documents added to the PEIC. Contact the PEIC, 513-648-5051 for a complete list of new documents.

Comprehensive Stewardship Plan public review

The Comprehensive Stewardship Plan for the Fernald Environmental Management Project is out for public review and is due to DOE Headquarters by January 31, 2003. The plan is required to ensure that all remediation activities continue to be effective and protective of human health and the environment following the completion of site remediation. If you have any questions about the document contact Gary Stegner, 513-648-3153.

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